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EXAMINER

TON, ANABEL

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,699

Applicant(s)

SUEHIRO ET AL.

Examiner

Anabel M Ton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-3, 21-25, 28-30 is/are allowed.
- 6) ☐ Claim(s) 4-20 and 31 is/are rejected.
- 7) ☒ Claim(s) 26, 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4, 17 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Abe (5,177,593)

- Abe discloses A light emitting device comprising: an insulating base having an upper surface and a lower surface; a metal layer provided on the upper surface and the lower surface of the insulating base; a plurality of light emitting elements arranged on the metal layer provided on the upper surface of the insulating base; and a metal connection (wire 36) that connects the metal layers to each other at a position where at least one of the plurality of light emitting elements is disposed (fig 9).
- Abe discloses a first metal layer (32a) provided on an upper surface of an insulating base; a second metal layer provided on a lower surface of the insulating base (32c); a plurality of light emitting elements (33) arranged along a base line on a surface of the first metal layer in a predetermined direction and a metal connection (36) configured to connect the first and second layers to one another said metal connection located at a position where a predetermined light emitting element of the plurality of light emitting elements is disposed.

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- Abe discloses lead patterns provided on top and bottom surfaces of an insulating base (32a, 32c); a lead for connecting the lead patterns (36); and a light emitting diode (33) provided at a place where the lead is positioned, the light emitting diode having first and second electrodes, one of said first and second electrodes being connected to one of the lead patterns.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-16,18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe.

5. Abe discloses the recited invention except for the chips comprising blue, green and red LED chips having a particular order in a predetermined direction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have blue, green and red LED chips arranged in a light emitting device in a predetermined direction since a prearranged array of blue, green and red LED chips are well known in the art in display devices to produce white light. With regards to the light emitting device comprising a plurality of red, blue and green LED chips, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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have a plurality of blue, green and red LED chips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

- With regards to the metal connection comprising a through-hole plating, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use through hole plating as a metal connection since such a practice is old and well known in the art for the purpose of providing a heat emitting electrical connection for the LED. (Please see cited reference Ishinaga et al for teaching (5, fig. 5a)
- The substrate comprises a reflection case having an opening provided on a side thereof on which the plurality of light emitting elements are arranged and a seal member comprising a light transparent material configured to fill the opening in the reflection case to seal the plurality of light emitting elements in the reflection case, said opening configured to surround the plurality of light emitting elements and extending toward the side where the plurality of bonding wires are provided (abstract);
- The substrate comprises a reflection case having an opening provided on its side where the plurality of light emitting elements are arranged, so as to surround the plurality of light emitting elements and be positioned toward the plurality of bonding wires; and a seal member comprising a light transparent material filled

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into the opening in the reflection case which seals the plurality of light emitting elements (abstract);

- With regards to claims 13 and 14, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.
- With regards to a plurality of separate leads connected respectively to the plurality of LED chips and a common lead connected to the plurality of LED chips by a common connection, the common lead being loaded with the plurality of LED chips and configured to absorb heat generated from the plurality of LED chips, such a configuration and method of connecting is old and well known in the art (please see cited prior art Ishinaga et al)

Allowable Subject Matter

1. Claims 1-3,21-25,28-30 are allowed.
2. Claims 26 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
3. The following is a statement of reasons for the indication of allowable subject matter: The prior art cited does not teach a combination of the following.
 - A light emitting device comprising: an insulating base having a plurality of electrical leads including positive and negative leads provided on top and bottom surfaces thereof, including a negative lead on said top surface and a negative

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lead on said bottom surface, each said negative lead comprising a common metal layer; an LED chip array arranged on one of said negative leads on said top surface of said insulating base, said LED chip array being electrically connected to said positive and negative leads on said top surface of said insulating base; a plurality of first metal connections configured to respectively interconnect said positive leads on said top and bottom surfaces of said insulating base; **and at least one second metal connection configured to interconnect said negative leads on said top and bottom surfaces of said insulating base, wherein for each said at least one second metal connection one LED chip of said LED chip array is mounted directly thereon.**

- A light emitting device for driving a plurality of LED chips disposed in an array to emit a mixed light composed of including lights emitted from the plurality of LED chips, said light emitting device comprising: an LED chip connection lead provided on tire an upper surface of an insulating base; a power supply connection lead provided on a lower surface of the insulating base; and a link lead configured to connect the LED chip connection lead to the power supply connection lead between the upper and lower surfaces of the insulating base, **wherein the LED chip connection lead comprises a plurality of separate leads connected respectively to the plurality of LED chips and a common lead connected to the plurality of LED chips by a common connection, the common lead being loaded with the plurality of LED chips and configured**

to absorb heat generated from the plurality of LED chips a location of each LED chip on said common lead being based on a relative amount of heat dissipated by each LED chip in said plurality of LED chess.

- A light emitting device comprising: a base; a first metal pattern formed on a top surface of said base as a single region of metal; a plurality of light emitting chips mounted on said first metal pattern; a second metal pattern on said top surface, said second pattern having a number of regions corresponding in number to said plurality of light emitting chips; a plurality of bonding wires, each electrically interconnecting one of said regions of said second metal pattern to one of said plurality of light emitting chips; **a third metal pattern formed on a bottom surface of said base as a single region of metal; and a fourth metal pattern on said bottom surface, said fourth pattern having a plurality of regions corresponding in number to said plurality of light emitting chips, wherein said first metal pattern and said third metal pattern are electrically interconnected by at least one metalized through-hole, and each said region in said second metal pattern is electrically interconnected to a corresponding region in said fourth metal pattern by a metalized through-hole.**

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anabel M Ton whose telephone number is (703) 305-1084. The examiner can normally be reached on 08:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Anabel M Ton
Examiner
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AMT
August 10, 2003

A handwritten signature in black ink, appearing to read 'T. M. Sember', is written over a faint, circular official stamp.

THOMAS M. SEMBER
PRIMARY EXAMINER